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PROFESSOR CHRISTISON'S LECTURE ON THE PRESENT STATE OF MEDICAL EVIDENCE.

[Concluded from page 296.]

THESE are the principal measures which, so far as I am acquainted with the subject, might be adopted without much difficulty by courts of law for the improvement of medical evidence. But the medical profession may also contribute largely their share towards its elevation.

If comparatively little has been said in the preceding remarks of the defects arising from the deficient knowledge, prejudices and errors of medical witnesses, it is not because these defects are not flagrant enough, or because I am not quite sensible of the discredit they have brought upon medical science; but because I could not go more amply into the subject without frequent allusions, which might be applied, possibly erroneously, or, if with justice, nevertheless to individuals, who after all were perhaps not so much to blame as the negligence of our courts, which left the door too open for error and ignorance to enter. Unfortunately there can be no doubt that there is much room for reformation in the habits and even principles of medical men as medical witnesses.

1. In the first place, a more general and accurate acquaintance with the facts and principles of medical jurisprudence is desirable. There is no greater or more common mistake among medical men than to suppose, that an experienced practitioner is necessarily a skilful medical expert or a safe medical witness.

2. Secondly, in order to make him so, we require better medico-legal text-books. I am far from undervaluing such works as the Elements of Beck, or the Manual of Taylor; but it is no disparagement of them to say, that no single individual can treat profoundly of the medico-legal relations of surgery, obstetrics, toxicology, insanity, and the general practice of physic. Nor shall I be content with the position of medical jurisprudence in this country until three, at least, of these departments shall have been illustrated by an eminent surgeon, a scientific accoucheur, and some admitted authority in mental diseases; who shall each add to his own practical experience the study of the records of medico-legal literature, especially the fertile literature of Germany and France.

3. Thirdly, when a medical man is necessarily and unavoidably concerned, in the ordinary exercise of his profession, with what in legal

phrase is called the *res gestæ* of a cause, he must of course make the best of his position by informing himself to the utmost on the subject of it.

But when asked in other circumstances to appear as a witness, his appearance as such being optional, there are some considerations he should weigh well before giving his consent. Among these the most important are, that he shall possess the requisite ability, and preserve his independence. On the former of these points nothing need be said in the present summary. On the latter, however, I may be permitted to conclude with a few words of caution, because there is no error more common among medical witnesses, and none more injurious, alike to the cause of medical jurisprudence and to the character of the medical profession, than the sacrifice of independence and impartiality to the views of the party by whom they are cited.

A few years ago I was consulted by a solicitor, in the interest of a person of good station in the north of England, who was accused, in suspicious circumstances, of murder by poison. And I was requested to give my opinion particularly on the validity of the chemical evidence, and if it appeared valid, to furnish "suggestions for shaking it." This incident will illustrate the object of a party's agent, when he looks out for medical evidence. When a medical man is asked on the part of the Crown his opinion, either as an expert or in consultation, on a criminal case in Scotland, he is expected by the Crown officers to maintain rigorous impartiality and independence; nor in general is there any risk of incidental temptation to the contrary. But when he is asked to be a witness for the prisoner in a criminal case, or for either party in a civil action, he may rest assured, that although the agent may not own it, even perhaps to himself, his expectation or wish is in most instances much the same with that of the English solicitor. There are few, it is hoped, who would not recoil from the broad request to "shake" evidence in which they themselves believed. But on the other hand, every man is not proof against the compliment conveyed in the more ordinary form of approach. There is, however, one simple rule which will invariably preserve him from sacrificing his independence: viz., never to embark as medical witness in a cause, when he has his option, unless satisfied that the purpose of his evidence is compatible with truth and justice. If he consent to appear for the mere purpose of contradicting the medical details of a case, while he cannot deny the main inference to which they conjunctly lead—for the purpose of embarrassing and shaking medical evidence, in the general conclusions of which he may be forced to concur—he perverts medical science and forsakes the province of witness. I remember a witness of this sort, who, after doing his utmost to undermine the chemical evidence in a charge of poisoning, by assailing this, that, and another petty fact as unworthy of reliance, was compelled, on being asked his opinion on the whole chemical evidence, to admit that it was irrefragable. And on another occasion, after the witness had been made to assail for nearly an hour the evidence of poisoning from particular symptoms and individual morbid appearances, the flimsy web, thus tediously spun, was torn to pieces in a moment, when

he was asked the simple question, whether, from the whole medical facts he had heard in evidence, he entertained after all any doubt, as a medical man, that death had been caused in the way charged in the indictment. He had none, and could never have had any. These gentlemen were not witnesses, but counsel; and very sorry counsel too. Their conduct escaped the censure of the court, but not that of their own profession. Let us hope that their example will serve as a beacon, to be avoided by their successors.

4. I wish I could add here the suggestions of Dr. Gordon Smith and Mr. Amos for the conduct of medical witnesses on trials. But I must be content with referring for this information to their writings; because I have already detained the College and its guests too long. For this I beg to apologize, pleading that the Council and I together selected rather too wide a subject for a single lecture. I have also more particularly to beg our friends of the legal profession, who have honored us this evening with their presence, to excuse me if I have used too great license in criticizing professional rules and practices, with whose bearings I may be inadequately acquainted. I cannot help feeling their injurious influence on medical evidence; and I cannot help expressing on this occasion what I believe to be the sentiments of my profession generally, as much as my own, upon the subject. If I have gone too far—if I have meddled too freely with an institution, whose principle is stability, and its ruling passion resistance to change, I must plead as my apology, that I am open to the prejudices of a restless profession, whose history is constant innovation and continual discovery, and its pride that it cannot for a moment stand still, as the world advances in science and civilization.—*London Medical Gazette.*

DR. ZIEGLER ON OSSEOUS REPRODUCTION AND REPARATION.

[Communicated for the Boston Medical and Surgical Journal.—Concluded from page 317.]

For the induction and advancement of these conservative efforts and restorative processes, there are two prominent and promising classes of remedies, being within themselves both highly curative and nutritive, not only correcting abnormal action but supplying, to a certain extent, the necessary material, and causing their appropriation by stimulating and increasing cell action and promoting healthy organic developments. These general remedies most prominent are the preparations of lime, the phosphate especially, it being the principal inorganic constituent of bone; and the oleaginous compounds, the most promising and useful of which is cod-liver oil. By the administration of the former, there is little doubt that the curative process or tendency might be frequently materially hastened, presupposing that the influence of those albuminous and oleaginous ingredients abounding in certain articles of food would be adequate to the production and supply of the plasmatic exudation and osseous base. Where, however, the remedial and nutrient power of these are insufficient, the use of cod-liver oil might be conjoined with

great advantage, and doubtless frequently with ultimate and perfect success. In some cases it may require, in addition to these and the usual local and other treatment, always necessary and instituted, the assistance of other alteratives, as iodine, and probably the superadded stimulus and support of the more direct tonics, &c., and a strict attention to other influences of a hygienic nature, highly promotive of, and essential to organic action. The prominent indication for the concentration of material and action, it will be observed, is in full activity in all of these lesions; hence the conveyance and appropriation of the former would be greatly encouraged. By the judicious combination and employment of such means, therefore, the system may be sustained, and placed in a state in which it may more readily and rapidly relieve itself of those generally protracted and destructive affections, and re-supply any existing deficiencies; and thus more speedily and certainly return to a healthy and normal condition.

In those cases of excision, in which there is an attempt at reproduction in the formation of and reunion by cartilage, the phosphate of lime would greatly favor the completion of the ossific process, particularly if given before the subsidence of the local excitement; though to promote such more definitely and certainly, it would be better, where not actually inadmissible from the danger of the pressure of abundance of callus on vital organs, to give it in the beginning, during the full activity of the local afflux, in conjunction, where this is insufficient, with the albuminous and oleaginous compounds so essential to cell development and functional activity.

In fact, this treatment will require modification according to the excess or deficiency of the separate materials, intensity of local action, character and activity of the disease, location of the lesion, condition of the general system, &c.

The failure of the more strictly reparative process, and the consequent occurrence of the conditions denominated pseudo-arthrosis, ununited fracture and non or imperfect union, is still a somewhat too frequent concomitant of fracture, excisions, &c., and in fact almost a constant attendant on some of such, as, for instance, those of the patella, cranial bones, intercapsular and other analogous disruptions, in which the previous existence of a similar state of things, viz., a deficiency of cellular tissue and vascularity, seems to promote an imperfect restoration; hence a somewhat detailed examination of them will not be inappropriate, especially as the present means and modes employed for promoting and correcting such, are still too often inefficient.

In the reparation of the solutions of continuity of the above-mentioned parts of the osseous system, accidental or otherwise, the cartilaginous reunion is almost a certain result, and if, in addition, there should be a cachectic state of the system, its supervention or even failure may be said to be positive, there not being sufficient material or vital energy to re-construct and re-organize the part sometimes even to this point of reparation. But, again, this same condition does occasionally follow an ordinary solution of continuity in apparently a favorable position and state of health for perfect reunion; yet if such are

closely scrutinized, it will be found that the same general principles are active in their induction, though it may be to a more limited extent. Hence proportionately to the predominancy of the tendency, would their occurrence be anticipated, and consequently excite just suspicions of their inception and induce greater vigilance for the discovery of the signs usually indicative of their approach, so that they should if possible be arrested in their incipiency. Thus by being guarded and prepared, and by the early institution of suitable precautionary and curative measures, their supervention might generally be prevented, and if they should accidentally or otherwise result, of treating them with greater prospect of success, and again renewing that indispensable condition of the organic structure so requisite to its ultimate perfection and usefulness.

In the further elucidation of this subject, therefore, and to promote more certainly the ultimate object of complete reparation, it will be necessary, first, to ascertain the particular indications requiring fulfilment; and though they are mostly similar to the preceding, yet are sufficiently distinctive for a separate consideration. These are generally, first, the reduction, coaptation and retention of the fragments in juxtaposition; second, the prevention or correction of any undue inflammatory action; third, removal of extraneous objects interfering with and preventing the induction and completion of the reparative process; fourth, the supply of the materials essential to the proper progress and development of the osseous substance; fifth, to continue, and, if prematurely subsided, re-excite the local nervous, capillary and cell action, necessary for their direction and conveyance to the part required, their appropriation and the development of the new osseous tissue; sixth, the improvement of the general vital energies; and seventh, the modification and rectification of intercurrent affections.

In the fulfilment of these we shall specially notice, however, only those which are generally neglected, and not occupy valuable space in discussing those which are universally recognized and put into practice, except incidentally and so far as is necessary to demonstrate the cause of their uncertainty and frequent failure. In the present mode of treating these conditions, those of pseudo-arthrosis and imperfect reunion particularly, the primary indication as a general thing seems to be entirely overlooked, while the whole attention appears to be exclusively occupied by, and directed to that secondary one, viz., the re-excitation of the local nervous, capillary and cell action; but the unsuccessful results of the means usually resorted to, to excite these and their ultimate consequences, viz., re-organization, as well as the evil and even dangerous effects often the consequence of the employment of hazardous measures, are well known, and it is apparent that they must thus necessarily be inefficient just in proportion as there is deficiency of proper material and energy in the system or part, though where there is only privation of the calcareous matter with a sufficiency of plasma this course will be proportionately successful in perfecting the cartilaginous connection.

It will be found, by examining the modus operandi of the various means resorted to, to induce re-organization, that they all act on the

same principle, viz., the excitation of local irritation, thus causing an increased flow and concentration of nervous influence and sanguinary fluid primarily; and secondarily, from the stimulus and materials thus afforded and secured, increasing or exciting cell development and action, for the appropriation of the latter and the reunion of the parts. This is undeniably highly important and absolutely necessary for the construction and final completion of the ossific connection, and according to the quality and quantity of the material in, and energy of the system, would, *cæteris paribus*, be successful.

That this is the true rationale of the seton of Physick, the ivory pins of Dieffenbach, the Hunterian method, and of all the other numerous devices for similar purposes, as the connecting wires, cauterization, perforations, resections, &c., there appears to be no doubt, in the use of all of which the existence of the indispensable material in the system is necessarily presupposed.

The dangerous and even fatal effects so often resulting from the induction of this action in the human body without the previous attention to and security of certain necessary prerequisites, is strikingly exemplified in that which under somewhat similar circumstances happens in the body politic by the disturbances which so frequently occur in large cities, in which a great number of individuals are previously invited to, and collected in, a particular place for a specific purpose, but in consequence of the absence of certain elements for their legitimate action and the presence of the numerous sources of irritation thus aggregated, an excitement is apt to be created, and too frequently the force, which otherwise would have remained latent or been profitably or agreeably employed, becomes active and is expended in perpetrating mischief. Just so it is with the local concentration of nervous energy and sanguinary fluid in the animal economy, in which the elements for high, yet not sufficient for normal action are present; it would either be of little or no use or directly detrimental by exciting irritation and inflammation and their too frequent terrible consequences, and thus prove actually destructive; while, on the other hand, if all the constituents were present, the greater disposition would be to healthy action.

The most important and prominent indication, therefore, for the perfection of the reparative effort and osseous reunion, is the supply of the essential materials; and this is readily fulfilled by the administration of the requisite albuminous, oleaginous and calcareous elements, presupposing, of course, that the nutritive functions are sufficiently active for their general appropriation. The first two, as before indicated, are obtained in great abundance from those substances ordinarily used as food; the most appropriate in the third, is the phosphate of lime. That the supply of this latter is highly important and of itself very valuable, is shown by the fact that fractures in fragilitas osseum, in which there is a proportionate excess of the earthy and a relative deficiency of the animal components, in some instances, notwithstanding this latter deprivation, re-unite very rapidly and with great certainty. As an adjuvant, however, to these, not only as a nutrient, but a remedial agent, the cod-liver oil is often strongly indicated, in conjunction with the lime and al-

bumen, thus more certainly forming the tripod so generally essential to cell development and activity.

The second indication is to invite and direct the materials to the part in which they are specially required, and to excite therein sufficient activity for their appropriation and the development of the osseous tissue. For this purpose it may be necessary to resort to some of the means usually employed. If, however, the local excitement is still sufficiently active, this indication so far is fulfilled, and the mere administration of the above-mentioned principles will doubtless be sufficient, in fact it being always preferable to commence the exhibition of these agents, and the inorganic especially, during this local activity and before its subsidence, if there be no contraindicating circumstances. It is obvious, however, that the calcareous matter particularly should not be administered in large quantities and too rapidly in those cases in which the presence, or pressure, from the deposition of an undue amount of callus, would be likely to prove injurious by interfering with the function of some important or vital organ, as in the injuries of the cranial bones; but in those of the patella, &c., it might be given much earlier, with, of course, due restrictions in the event of the existence of high inflammatory action; if this should be moderate, it would be safe and proper from the commencement. Where, however, this local tendency and action had subsided or was inefficient, it would be requisite to resort to some of those means before indicated to re-excite them, and of these the milder ones first; especially in the cranial bones, &c., exercising the same precautions with regard to undue action and deposition as in spina bifida. Coincidently with the administration, such measures as moderate friction around the part, or mildly irritant applications, might be instituted and very gradually increased, and prolonged until sufficient action has thus been created to cause a continuation of the ossific process and a development of the required structure. But in those cases in which the long bones are implicated, and in which the same evils are not to be apprehended, this care would not be so necessary, and therefore, if these milder measures fail, those of a more stimulant character should be resorted to, and the acupuncture, or, what would probably be still more efficient, the *galvano-puncture*, might be carefully used, or even the seton, either one of which would doubtless generally be amply sufficient. It is believed that the well known still more powerful means, an enumeration of which is unnecessary, would be very seldom required if the primary indication had been previously carefully fulfilled.

To demonstrate more fully that these views are not purely speculative but are strictly based on, and in accordance with physiological, pathological and therapeutical facts and principles, additional evidence of their truth and practical value will be afforded by the following incidental reference to the use of the inorganic element in some of these conditions, from the excellent paper of Dr. Beneke on the phosphate and oxalate of lime. "As to other affections in which I have tried the phosphate of lime, I have to mention rickets, caries, inflammations and consecutive abundant suppurations of the cellular tissue, and also fracture in the bones. In all of these cases the administration proved most

beneficial, and I would strongly advocate its further experimental use. With respect to fractures of the bones, I have to state in particular, that the consolidation of the callus took place in a much shorter period than is generally the case; however, too large doses of phosphate of lime must be shunned in these cases, as I have observed an abundant callus causing a deformity of the bones, produced by the daily administration of twenty-four grains of the phosphate for a fortnight."

It will thus be observed that the above, so far as it extends, fully sustains the views which have been advanced in this and the preceding paper, in recognizing the prominent indication for the supply of this earthy constituent, in fractures especially, but only immediately after this solution of continuity and during the early stages of the reparative process in which all the conditions for its concentration and appropriation are in full activity; but subsequently, when the local nervous and circulatory tendency and afflux and cell action have subsided, the mere introduction of this or any other material into the economy would not prove efficacious, as the proper period of restoration having thus passed away and the vessels and cells sunk into an inactive state, there is in consequence of this inertia very little or no disposition to renewed activity; and again, if the still more primary and principal indication for the supply of the material for the previous plastic deposition had been neglected, the fulfilment of this secondary one would of course prove inadequate. Therefore, for the perfection of the whole, it is necessary to answer all the indications simultaneously or coincidently, and in accordance with the respective deficiencies, by not only furnishing the materials but exciting the forces or agents for their conveyance to, and concentration on the part requiring reparation, and finally the cell or organic action for their appropriation and the consequent development of the special osseous substance, thereby causing the successful induction or continuation and completion of the process of restoration.

Philadelphia, May 1st, 1852.

"MRS. WILLARD'S CATECHISM" ON THE MOTIVE POWERS.

SHE ANSWERS THE QUESTIONS.

To the Editor of the Boston Medical and Surgical Journal.

DEAR SIR,—While yet a child, I learned from my New-England ancestry to reverence the very term "catechism"; and since I am now honored with one specially addressed to myself, and contained in this Journal, I feel bound to make response.

The first catechetical exercise assigned me, is to say, "Where is the motive power in the circulation of those classes of animals which have *no lungs*, such as the fishes, molusca, crustacea, insects, radiata, vermes, &c.?"

To which I answer—*there are no animals which have not lungs*, or something which answers to lungs, possessing more or less perfectly that vital force peculiar to the organ, by which atmospheric air is made to part with its oxygen to sustain the combustion of the carbon of the ve-

nous blood, hither brought, and here used as fuel to the fire of animal life. This process is respiration; and, "respiration," says Cuvier, "is *the function essential* to the constitution of an animal body; it is that which in a manner animalizes it; and we shall see that animals exercise their peculiar functions more completely according as they enjoy greater powers of respiration." "To respire," says Noah Webster, "is to breathe—to inhale air *into the lungs*, and exhale it for the purpose of maintaining animal life"; and again, "respiration is the act of inhaling air *into the lungs* and again exhaling it, *by which animal life is supported.*" Since, then, lungs are by definition essential to respiration, and respiration to animalization, *there are no animals without lungs.* Q. E. D.

But the lungs of animals are differently constituted, to fit them for the different states of existence to which their Creator assigned them. "The respiration of fishes is performed," says Dr. Leiber, "by gills." "The motion of gills in fishes," says John Bell, "is a true and perfect respiration, for if there be no air in the water, or not enough of air, they cannot breathe. Fishes cannot breathe in air wanting water, for that element is not accommodated to their SPECIES OF LUNGS." "The molusca," says Cuvier, "differ strikingly from the vertebrated animals, particularly in relation to the position of the heart and respiratory organs. In the molusca, their *pulmonary* circulation always makes a separate and complete circuit, aided by one aortic heart placed between the veins of the LUNG and the arteries of the body." "The crustacea," says the same author, "respire by branchia, a kind of gills. The blood is transmitted to the branchia from the heart and thence back to the heart." Of the "regular and beautiful gills of shell fishes," John Bell made two drawings, one of which showed, he said, "the heart and LUNGS."

Cuvier, as is well known, founds his classification of the animal kingdom on degree of respiration. His fourth and lowest class, being that which has the least respiration, is called by him, Radiata. These animals, he says, have their *respiratory organs* almost always on the surface of the body. Insects and worms, the last mentioned in the "Catechism," are included by the great naturalist in his third class, articulate animals. Most of these *respire* by means of trachea,* "elastic vessels which receive the air by orifices called stigmata." If each of these be, as it seems, a tiny mouth to inhale air, received by its own microscopic lung, where the venous blood has its carbon enkindled, then each of these would become to the fluid blood—thus at these points warmed, vivified and *expanded*—the centre of a wave-like motion. Are not such movements discernible? and do they not confirm the theory which we advocate?

That only can be a cause, which is an invariable antecedent. Respiration is the only invariable antecedent of circulation. If, as the writer of the Catechism seems to assume, there had been animals with

* What is most perplexing in this species of respiration, says John Bell, is the prodigious quantity of air which these creatures receive, the impossibility of tracing blood-vessels from the heart, and the clearness with which we see air-tubes branching over all parts of their body. There can be no mistake that it is air they breathe. If we close up the stigmata of an insect, one by one, the parts become in the same proportion paralytic; if we stop the two highest holes, it dies.

a circulation and without respiration, our theory would have been disproved. Now if there are animals with a circulation and without hearts, then the theory of circulation by the heart's action must be abandoned. An article in the New York Journal of Medicine,* in favor of the old theory and against ours, where all is made of a bad cause that sophistry can accomplish, acknowledges that "Some of the lowest orders of animals have a circulation, but no heart." Dr. Cartwright, in his last communication to this Journal, puts this part of the subject for ever at rest. The vast number of animals which he shows as having no hearts, and his experiments on alligators, where circulation continued after the heart was removed, have done a work for science, which will never need doing over again. Should the writer of "Mrs. Willard's Catechism," who we have reason to presume is a believer in the old theory, think otherwise, he has now an opportunity for reciprocating civilities, by answering the question, how does the heart's action circulate the blood of those animals which have *no hearts*?

The two remaining questions of the Catechism, besides some former ones contained in preceding numbers of this Journal, refer to the fœtus in utero.

When this theory of the circulation stood in my own mind but as a hypothesis, the objection stated in these queries met me; but it did not long bar my way. For it is evident that however the blood is circulated before birth, it cannot continue to circulate in the same manner afterwards, but some new principle must prevail. The organism in the two states is different. In the first of the two conditions the ventricles of the heart communicate, and through the ductus arteriosus is carried the blood, hereafter to pass through the now useless lungs to the aorta. The distinction which I had perceived between the two forces—the mechanical force of the heart's action, and the chemical force generated by respiration—gave me to expect that if, in the embryo state, one of these forces was needed and the other was not, unerring Wisdom would use—and perhaps for the occasion increase—that one, and prospectively prepare for the other. And accordingly the heart's force, as I have explained in my work on the Motive Powers, is not only proportionally stronger, but is so placed as to act with the greatest mechanical advantage. That organ has, then, its greatest proportional size and power, and by the position of the ductus arteriosus the full force of the right ventricle is added to that of the left in propelling the blood through the aorta and its branches. But even then, without the mother's respiration, this initiatory circulation must fail. After birth, the respiration of the infant must occur as soon as that of the mother ceases to affect her offspring, or it lives not. If its own perfect respiration does supervene, then has a new existence begun, which is to last while respiration lasts, bearing along a tide of life stronger or more feeble as respiration is more or less perfect, and finally to cease when *it* ceases.

We believe that the theory of animal circulation by respiration might justly take a bolder ground, and claim that the phenomena of the state

* September, 1846. Answered by the author, March, 1847.

before birth, and the change occurring at birth, so far from falsifying this theory afford presumptive proof of its truth.

When first the air enters the trachea of a new-born infant, the inflation of the lungs must open the vessels and vesicles prepared to receive the venous blood. To fill the new-made vacuum, the whole of the blood from the right ventricle rushes through the pulmonary tubes, leaving none to go through the ductus arteriosus thus made useless, and henceforth to be abolished. But what is to move the blood from the capillaries of the lungs? The heart's force, insufficient before without aid from the mother's respiration, is now divided, while its work is doubled. A new power must then be generated by the meeting of the air with the blood, enkindled by the peculiar vitality of the lungs. Without such a power no perceptible cause exists sufficient to move the blood onwards to the left ventricle. But it is moved thither, and with a power which presses down and closes the valve of the orifice between the ventricles, showing clearly that this current exceeds in force that in the right ventricle. Grant that the new function of respiration has furnished new power, and this astonishing instantaneous metamorphosis from amphibious to mammalian life, becomes perfectly intelligible, and the wisdom of the Creator fully vindicated.

The field of this controversy would be narrowed for the future, if it were now conceded that the circulation which it concerns, is that of animals with a circulatory system. Many of the lower classes of animals have no continuous system through which the blood circulates. The fœtus in utero is but an embryo; it is not an animal. It does not become animalized until it breathes. It is as absurd to maintain the contrary as it would be to assert that a willow branch, partaking the circulation and sharing the sap of the parent stock, is a young tree. Then to assume this absurdity as a truth, and reason from it that because this branch has no roots, trees have none, and do not need any, would be a fallacy of the same kind, as to assume from the condition of the fœtus, the truth of the old theory of circulation by the heart's action, and then to apply it to perfect animals. The willow branch must be placed in the soil and send down its own roots before it can be a vegetable; and the embryo must be born into the world and breathe the breath of life before it is an animal. "Birth and death," says Cuvier, "are the universal limits of the existence of all living beings."

Man is but the interpreter of nature. The priest or priestess at the altar, does but point to the Deity, and show why *His truth should be followed and adored.* EMMA WILLARD.

Troy, N. Y., May 10th, 1852.

Post Scriptum.—After having completed this article, and while waiting for an answer to a request written to Dr. Hiester, at Reading, that he would permit the publication of the appended letter, I read in the Journal of the 12th instant, some "Remarks on the New Theory," from Kingston, Ulster Co., N. Y. My neighbor there will please accept my thanks for his candor, notwithstanding he deals more in "cypress" and "night-shade" than in my humble opinion the occasion demands.

His article shows that he has never read either my work on the Motive Powers, published in 1846; or that on "Respiration and its Effects," published in 1849. Had he understood our theory, he would not now have spoken of the strength of the current at the aorta as a measure of the *heart's force*, because he would have perceived that this is a mere begging of the question; since, if our theory is true, that current owes its *principal* force to the chemical power developed in the lungs—regulated, however, quickened, and made pulsative, by the heart's vital and perpetual beat. Nor would he have jumped to the conclusion, that we taught concerning the force generated at the lungs, the ridiculous absurdity that it drove the blood all the way round from lungs to the lungs again. He will perceive, by reading the foregoing article, that on the supposition of a power being begun in the lungs by the infant's first breathing, two things are accomplished, one in the front and the other in the rear of this moving force; and that, that in the rear of this first starting of the vital tide, must of necessity be performed first, for the blood must be obtained from the right ventricle—and that, too, by changing the current—before it can be sent to the left; and of course it is not a driving but a *drawing* force which effects this. And there must be a continual supply for the lungs obtained in the same manner; and hence *a perpetual suction force established*, drawing on the venous blood to the lungs, from the right ventricle, the great veins, and finally from the whole venous system. A powerful force is needed to effect all these objects. Is the "capillary power" sufficient? If our Kingston opponent should maintain the affirmative, we must then be excused for turning him over to Dr. Cartwright and his alligators.

Dr. Hiester, of Reading, Pa., did me the honor to read my book on the Motive Powers, by which he became prepared to expect the result that followed Dr. Cartwright's experiment. Dr. Hiester's name is widely known for professional skill, for general scholarship, and for the amenity of the true gentleman. Many in the eastern section of the Union know his reputation, who are not so well acquainted with that of Dr. Cartwright, of whom he speaks so highly. Dr. Hiester, in according me permission to publish his letter, remarks that it was but a hurried expression of his opinion, not intended for the public eye; nevertheless it was his opinion, and although not fond of public controversy, he had no concealments, and if I thought the publication of his letter would be useful, I had his "entire consent." E. W.

Mrs. Willard. *Reading, Pa., April* 30, 1852.

Dear Madam,—I snatch a moment from a continual press of professional engagements to acknowledge the receipt of the "Northern Budget," which you did me the honor to forward. Having read your "Treatise on the Motive Powers of the Blood" soon after its publication, I was prepared, by your ingenious experiments and the force of your reasoning, to see your theory established as soon as it should be practically and with candor brought to the test on the animal body. The experiments of Dr. Cartwright, however startling to some who had not turned their attention to the subject, were not so to me. It seems

indeed providential that the confirmation of your theory has fallen into the hands of one so peculiarly favored by circumstances, and so well qualified by his talents and just eminence in his profession, for the performance of the task. That the overthrow, and that, too, by one of the other sex, of the doctrine taught by the illustrious Harvey, that the heart is the chief motive power of the blood, should alarm the pride and arouse the prejudices of some even of my profession, for whom I must be permitted to claim as much liberality at least as belongs to others, was to be expected, and does not, I hope, disturb your equanimity. It would, perhaps, be expecting too much from the infirmities of our common nature, that a hoary error taught and cherished for two centuries should be abandoned at once without a struggle. The experiments of Dr. Cartwright, however, demonstrate, in my humble judgment, beyond all future cavil, that the chief motive power of the blood resides in the lungs; and that the heart, although an indispensable organ in the circulation, is after all only of secondary importance.

I am with great respect your ob't ser'vt,

ISAAC HIESTER.

PUERPERAL PERITONITIS.

[Communicated for the Boston Medical and Surgical Journal.]

AT a late meeting of the Suffolk District Medical Society Dr. Homans read an extract of a letter from his son, who has recently been attending the midwifery practice in the large hospital of Vienna. The remarks are interesting, in connection with the observations that have been made, in this city, upon the contagiousness of puerperal peritonitis, and the pathological relation that seems to exist between it and erysipelas.

Rome, March 9, 1852.

You ask me to let you know something concerning the puerperal fever epidemic in Vienna. I will tell you all I could find out about it. The epidemic prevailed about three weeks, from three to six patients dying a-day. The physicians do not believe it contagious or infectious, but that it comes as any other epidemic, they do not know how. I saw cases of erysipelas in the same ward, all the patients being lying-in women, but I never heard any remark made as to the connection between the two affections. The number of cases of the disease was greater in the ward of one physician than in those of the others. In fact the epidemic was almost confined to the clinique to which students were admitted. It was suggested that the fact that the young men spent a great deal of time in the dead-house, and handled specimens of morbid anatomy, proceeding thence to the Hospital and touching a number of women in process of delivery, might have some effect in causing the epidemic. Others scoffed at the idea; but touching being prohibited to the students during about a fortnight, the malady disappeared. The deaths were, as I have before said, from three to six a-day, out of, on an average, ten to fifteen births a-day, the number of pa-

tients in the Hospital happening, fortunately, at the time of the epidemic to be less than ordinary. The mortality was not so great as during an epidemic which I witnessed in Paris, during which every patient that was delivered died, and the Hospital was finally closed for a time.

In Paris, the origin of the epidemic was supposed by many to be the proximity of the Hospital to extensive dissecting rooms. In Vienna, many patients were attacked by peritonitis, &c., during the epidemic and recovered ; and many, who had been very generally examined by the students, escaped entirely. I ascribed the existence of the epidemic in the latter place, to the defective ventilation in the wards, though the Germans thought this had nothing to do with it, they being in general, you know, opposed to a free introduction of pure air. In Vienna, some of the cases were rapidly fatal, in twenty-four, thirty-six or forty-eight hours, while others lingered on for a week, ten days, or more, and then died with pneumonia, sloughs on the sacrum, &c. &c., in a most miserable state of suffering.

Their treatment was just nothing at all generally, though frequently they bled from the arm, applied a great many leeches, used emetics early, &c., and sometimes with good effect.

MANAGEMENT OF INFANTS.

BY M. A. SAWIN, M.D.

[Communicated for the Boston Medical and Surgical Journal.]

I WISH, through the pages of the Journal, to offer a few remarks upon the treatment of infants, being convinced that wrong management not only does much to swell the fatal list of infantile mortality, but that many of the diseases of after life may be traced to this prolific source. While statistics show that upwards of one third of the human race die before reaching the age of three years, I think all will agree that it is a subject worthy the attention of each, and especially of the medical profession.

Some of the abuses to which infants are subjected, have become so much a matter of custom, that a nurse will take it as an insult to her judgment, and an innovation upon her rights, to suggest any alterations. No sooner is the little sufferer ushered into the world, than every device that perverted judgment can invent is put in requisition to hasten it away. Some staunch advocate for the new doctrine of hydropathy recommends the cold bath, with the sage remark that it will make it "robust and hardy." Accordingly the little delicate thing receives a cold bath, which suddenly checks the determination of blood to the surface, and sends it back in a powerful current to those delicate organs which are just commencing their feeble efforts to establish a separate existence. The pulmonary arteries, just opened to the sanguinary fluid which rushes through their tubes in torrents to be aërated, are illy calculated to resist this engorgement, and the child is in imminent danger of asphyxia ; the internal organs are overwhelmed with an excess of blood, and congestion, irritation and serious functional derangement are often the result.

Then, as though nature was not fully competent for the performance of all her duties, she must be assisted with castor oil, magnesia, molasses and water, or some nauseous drug, to cleanse the stomach and bowels, thus strengthening the foundation already laid for gastric and intestinal irritation, which is nearly certain to follow.

If the child is restless and fretful under this treatment, it is then surely hungry, but it must by no means be put to the breast, its proper and natural source of nourishment, until the third day. Oh, no! it must be fed with milk and water, arrow-root, or something of the kind; and if this does not quiet it, it will probably get some paregoric, or perhaps some laudanum, which will deaden its sense of pain, and produce the quiet of narcotism.

This is no exaggerated picture. That the infant is often subjected to all these abuses within the first twelve hours of its existence, is a well-known fact.

The dress of infants, also, in my opinion, deserves attention, as being a fruitful cause of infantile diseases. The absurdity of the practice of exposing the neck and arms, during the cold months, must be manifest to every one who gives the subject a thought; and who can doubt that many diseases are the direct result of this exposure. The mother thoughtlessly yields to fashion's arbitrary sway, and permits the whole thoracic region of her infant to be exposed to changes, to which she could not submit herself with impunity. And what wonder that the babe has croup and its attendant train? Is it not reasonable to suppose that bronchitis, laryngitis and phthisis pulmonalis, are frequently but the development of germs sown at this early period? Some mothers seek to amend their folly by keeping the infant carefully wrapped in a blanket; but this is always an objectionable article of dress, not only that it confines the limbs, and prevents their free use and development, but that it is too easily and frequently thrown aside, and the child, perhaps reeking with perspiration, is exposed to atmospheric changes which can scarcely fail to have an injurious effect upon its health.

This is a progressive age, and reformative measures of every kind are agitating the community. The more rational treatment of infants is one which ought to find response in every mother's heart; for many have laid their children in the tomb, the innocent victims of fashion and mismanagement. I hope the time is not far distant when fashion will give place to wisdom and common sense, and mothers will provide their infants with dresses of soft white flannel, made in such a manner as to cover the neck and arms, at least six months in the year, and will think it quite as becoming and lovely to see them dressed comfortable and healthful, as to see their little chests exposed to the vicissitudes of our northern climate, with castor oil, magnesia and hive-syrup in perspective.

I have never sympathized with the advocates of "Woman's rights," *except so far as her educational rights are concerned;* but if I can say any thing in defence of babies' rights, which will ameliorate their condition, and lessen the amount of infantile mortality, I shall feel that I am contributing something to the progressive reforms of the age.

THE BOSTON MEDICAL AND SURGICAL JOURNAL.

BOSTON, MAY 26, 1852.

Vital Statistics of Memphis.—George R. Grant, M.D., gave a recent anniversary address before the Medical Society of the thriving city of Memphis, in Tennessee, on the sanitary condition and vital statistics of the place. The doctor mourns very properly over the neglected records, the consequence of the utter negligence of the conscript fathers, who are doubtless more intent upon green turtle soup than registering births and deaths. He could not even ascertain how many persons had died last year! By popular consent, there have been sickly and healthy seasons, and that is about the whole of the matter that is known in Memphis. Dr. Grant has certainly made the civil authorities ashamed of their neglect by his discourse. In 1850, the white population of Memphis was 6,369—3,587 being males, and 2,782 females. "Whoever will traverse the alleys running parallel with our principal streets," says the doctor, "will see enough of dirt and filth, not only in these alleys, but in the rear part of most of the improved places in Memphis, to satisfy the most casual observer that cleanliness of our streets and enclosures is not an important matter in our domestic city regulations." The city seems to be actually worse off than its old namesake in Egypt, when we roamed over its mounds of rubbish—the accumulations of 4,000 years. But its sanitary condition was excellent. Although the old burial field of Sakkara, the largest on the globe, contains more human bodies, swathed in bandages, than there are living men on the borders of the Nile, they were never a nuisance in any stage of their deposit, so carefully were they secured. Many a wise municipal regulation might be learned by the authorities of Memphis, in Tennessee, by reading the history of their predecessors on the Nile. Dr. Grant is a good writer, and if his neighbors are roused, as this discourse is calculated to rouse them, to a sense of shame for dwelling in the midst of corporation filth, he will be entitled to the reputation of a reformer.

Smallpox.—Is the profession to be reproached, or not, on account of the frequent outbreaks of this terrible malady at all points of the Union? If physicians were not importunate, in season and out of season, in warning parents of the danger that awaits their children, by neglecting vaccination, they might be blameable; but no such wicked charge can be laid at their door, as unfaithfulness in warning. Deaths are constantly taking place—the victims of neglect. A certain remedy is at hand, but a melancholy amount of physical suffering, scarred faces, blind eyes, broken-down constitutions, are the consequences of parental neglect of it. There ought not to have been a death in the United States, by smallpox, in 1851; yet the mortality was immensely large.

Boston Physicians' Fee-Table.—A week ago, a note was written upon this subject, which has been mislaid, and we therefore refer to it again to say that a satisfactory modification of the fee-bill has been brought about,

Charges will hereafter be higher, and presented twice a year for payment. For many years we have contended single-handed in this community for the adoption of the English system—cash down. This wretched custom of booking, and losing half, and often the whole, will ultimately be abandoned.

Veterinary College.—A charter for one has been obtained of the Legislature of Pennsylvania—and we believe it is the first to be organized in this country. There might and should have been a veterinary institution in Boston, years ago; but with all our manifestations of sympathy, poor sick animals have always been neglected. Philadelphia has the tact for creating and centralizing schools of science. As soon as it is thoroughly noised over the country that the veterinary college there is thronged with students, as it will be, if men of commanding talents are selected for professors, half a dozen others will spring up with the vain expectation of being equally successful. But there are some people destined to be always a day after the fair. The first will ever after be *the* college, while the new comers will shine with borrowed light. The enterprise of medical men in Philadelphia, particularly directed to the multiplication of facilities for teaching the science, has made it the great focus of medical learning in America. That reputation will be sustained till some other city in the Union outsteps it in the same line of discreet policy, by rearing magnificent edifices, opening libraries, granting facilities for anatomical pursuits, and, above all, inviting men of genius and talent, from every section of the world, to unite their forces to give character and efficiency to whatever scheme is developed for advancing useful knowledge.

Public Health.—One satisfactory evidence of the excellent state of the public health in Boston, is the declaration of the practitioners of the city, who say they have rarely had less business for some years. The neighborhood in the country about, within a circle of fifty miles, is equally free from sickness. There are no indications of any disturbing causes to affect the stability of the public health, as the bloom and beauty of summer approaches.

Opening Anatomical Cabinets to the Public.—It will be a gratifying epoch in the history of things in this country, when anatomical cabinets are thrown freely open to the public, as in Europe. Let the people see what they all have an intense desire to inspect—the machinery of animal bodies. Whether skeletons, dissected preparations, wax models or wet specimens, open the doors without restriction, and we should hear no more of the vulgar prejudices against anatomical pursuits. A sentiment of respect for such institutions would be developed, and those who cultivate medical science be appreciated far more than under the present New England system of locking up the blue chambers. If this plan were adopted, persons would be reminded of articles which might be contributed, strangers gratified, and all made wiser. Were a little courtesy of this kind shown, those who keep the keys in close pockets would be amazed at the success of the plan, and would receive the encouraging comments of travellers, letter-writers and the press. The magnificent collection of the Pitti palace, in Florence, is daily thronged with representatives from all

civilized nations, intermixed with crowds of peasantry in their wooden shoes. Such a cabinet in America would be approached by a special vote of permission from a board of directors. Quacks could not be sustained if care were taken by the regular profession to allow the eyes and ears of the masses to see and hear just what is kept from them through a mistaken idea that none but the initiated are entitled to these privileges.

Middlesex North District Medical Society.— This Society held its annual meeting at Lowell, on Wednesday, the 19th inst., and elected the following officers. *President*, John C. Dalton, M.D., of Lowell; *Vice President*, John C. Bartlett, M.D., of Chelmsford; *Secretary*, Charles A. Davis, M.D., of Lowell; *Treasurer and Librarian*, N. B. Edwards, M.D., of North Chelmsford; *Curator of Cabinet*, E. K. Sanborn, M.D., of Lowell. *Standing Committee*—Drs. J. P. Jewett and L. B. Morse, of Lowell, Jona. Brown, of Tewksbury. *Censors*—Drs. E. Huntington, of Lowell, John C. Bartlett, of Chelmsford, David Wells, of Lowell, A. B. Bancroft, of Groton, Nathan Allen, of Lowell. *Counsellors*—Drs. J. C. Dalton, E. Huntington, G. Kimball, J. W. Graves and Nathan Allen, of Lowell; A. B. Bancroft, of Groton, J. C. Bartlett, of Chelmsford, N. Cutter, of Pepperell.

Death of Dr. Kingsbury.—Dr. Kingsbury, of New York, whose death was recorded in last week's Journal, has been an occasional contributor for some years past to this Journal. His last article was a translation from the German, and was inserted in the Journal of April 14th. He died, we understand, of ship fever, at the early age of 30 years.

Mrs. Willard's Theory of the Circulation.—An article from the pen of Mrs. Willard, in reply to some queries by Dr. Rodgers, will be found in the Journal to-day. It may be well to mention that the series of articles in the Journal by Dr. Cartwright, in defence of the new theory, is yet unfinished. Readers who may have noticed that objections to the theory have not been answered by him, will bear in mind that he has probably not yet reached them in course.

The editorial remarks in a late number of this Journal on the singular fact that in the list of members of the American Medical Society in Paris, none appeared to belong to the New England States, have called forth the following reply, which is cheerfully inserted. We are sorry the writer thought it necessary to allude to matters foreign to the subject in question, but we have not, under the circumstances, felt at liberty to omit any part of his explanation.

The American Medical Society in Paris and the New England Physicians resident there. Mr. Editor,—A friend has called my attention to an article in the last number of your valuable and interesting Journal, concerning the American Medical Society in Paris, which is calculated to injure the officers of that association in the estimation of the public. It is a fact, as you state, that nearly all the States of the Union are represented in the Association, and that there is not *one* member, either active or honorary, from any of the New England States; and it is also true, that there are many students from Massachusetts, and other eastern States,

who reside in Paris. You seem to intimate, from the tone of your article, that the fact of their non-admission is attributable to either the negligence or discourtesy of the officers of the American Medical Society.

I have just returned from Europe, and having been a member of that Society from the day of its organization, am, therefore, enabled to state that there has been neither any negligence nor want of courtesy in our Society, but that, if there is any fault, it is justly chargeable to the New England students themselves. A meeting of American physicians resident in Paris was convened in November last, and resulted in the establishment of our Society, which has been in operation ever since, its meetings being held weekly, papers read, cases reported from hospitals, and questions discussed. Several of the New England physicians were aware of the fact, and have had time from the 15th of November, 1851, until the month of March, 1852, when the constitution and catalogue of members were printed, to decide, yet they declined, perhaps disdained, to unite with their fellow countrymen in a Society for professional improvement, preferring probably associations more congenial to their tastes—in other words, have become members, and even officers, of the British Medical Society. Like the Greeks of old, considering all outside of the self-styled "Athens of America" as undoubted barbarians, or, at the best, tolerably civilized, but true to their traditional instincts, they except always cousin (?) John Bull, to whom they hung out blue lights and invited in, during the war of 1812. If the New England students declined joining the American Society, it was not surely the duty of its officers to run about Paris and *beg* gentlemen to honor the Society with their membership. Yours respectfully, A. J. Semmes.

Georgetown, D. C., May 15, 1852.

The Philadelphia College of Medicine contemplates the erection of a new house the present season.—Yellow fever rages most destructively at Rio Janeiro. Say what they may to the contrary, the entire experience of that country proves that it is an infectious disease of uncommon energy, which medicine does not control.—Miss Catharine Scholey, 36 years of age, a native of Ohio, is supposed to be the heaviest woman in the world. She weighs 611 pounds.—Lectures are going on at Geneva, N. Y., with a prosperous class. Operations in surgery have been frequent and and important since the term opened.

To Correspondents.—Dr. Bradbury's case of Amputation at the Hip-Joint, Dr. Chabert's case of Sciatica, and H. A. H. on Anæsthesia, have been received.

Married,—In Dorchester, 18th inst., Dr. Albert H Blanchard, of Sherburne, to Miss Eunice A., daughter of Joseph Hooper, Esq., of Dorchester.

Died,—At Thompson, Conn., 20 inst., suddenly, of apoplexy, Dr. Samuel Bowen, an eminent physician.

Deaths in Boston—for the week ending Saturday noon, May 22, 50.—Males, 24—females, 26. Apoplexy, 1—inflammation of bowels, 2—inflammation of brain, 1—congestion of brain, 1—consumption, 10—convulsions, 2—cancer, 1—croup, 2—dropsy, 2—dropsy of brain, 4—erysipelas, 1—fever, 1—typhus fever, 1—scarlet fever, 1—disease of heart, 1—infantile, 6—inflammation of lungs, 3—neuralgia, 1—old age, 2—suicide, 1—teething, 3—throat disease, 1—thrush, 1—ulcers, 1.

Under 5 years, 20—between 5 and 20 years, 8—between 20 and 40 years, 13—between 40 and 60 years, 3—over 60 years, 6. Americans, 23; foreigners and children of foreigners, 27. The above includes 3 deaths at the City institutions.

American Medical Association.—The following is a list of the Special Committees appointed at the late meeting of the Association at Richmond. It is copied, as were the extracts in last week's Journal, from the report kindly forwarded by the editor of the New Jersey Medical Reporter.

D. F. Condie, Philadelphia, Causes of Tubercular Disease.

James Jones, New Orleans, The Mutual Relations of Yellow and il i ous Remittent Fevers.

R. S. Homes, St. Louis, Missouri, Epidemic Erysipelas.

Charles D. Meigs, Philadelphia, Acute and Chronic Diseases of the Neck of the Uterus.

J. P. Jervey, Charleston, South Carolina, Dengue.

Daniel Drake, Cincinnati, Milk Sickness, so called.

Dr. Lopez, Mobile, Prevalence of Idiopathic Tetanus.

George B. Wood, Philadelphia, Diseases of Parasitic Origin.

R. D. Arnold, Savannah, The Physiological Peculiarities and Diseases of Negroes.

Joseph Carson, Philadelphia, Alkaloids which may be substituted for Quinia.

S. D. Gross, Louisville, Kentucky, Results of Surgical Operations for the Relief of Malignant Diseases.

James R. Wood, New York, Statistics of the Operation for the Removal of Stone in the Bladder.

Alexander H. Stevens, New York, Sanitary Principles applicable to the Construction of Dwellings.

G. Emerson, Philadelphia, Agency of the Refrigeration produced through Upward Radiation of Heat, as an Exciting Cause of Disease.

Henry J. Bigelow, Boston, The Best Means of making Pressure in Reducible Hernia.

A. T. B. Merritt, Richmond, Cholera and its Relations to Congestive Fever; their Analogy or Identity.

Usher Parsons, Providence, R. I., Displacement of the Uterus.

H. F. Campbell, Augusta, Ga., Typhoid Fever.

Worthington Hooker, Connecticut, Epidemics of New England and New York.

Jno. L. Atlee, Lancaster, Pa., Epidemics of New Jersey, Pennsylvania, Delaware and Maryland.

R. W. Haxall, Richmond, Va., Epidemics of Virginia and North Carolina.

William M. Boling, Montgomery, Ala., Epidemics of South Carolina, Georgia, Florida and Alabama.

Edward H. Barton, New Orleans, Epidemics of Mississippi, Louisiana, Texas and Arkansas.

Dr. Sutton, Georgetown, Kentucky, Epidemics of Tennessee and Kentucky.

Thomas Reyburn, St. Louis, Mo., Epidemics of Missouri, Illinois, Iowa and Wisconsin.

George Mendenhall, Cincinnati, Ohio, Epidemics of Ohio, Indiana and Michigan.

COMMITTEE ON VOLUNTEER COMMUNICATIONS.

Joseph M. Smith,
Jno. A. Swett,
Willard Parker,
Gurdon Buck,
Alfred C. Post,

all of New York.